

CLAIM AMENDMENTS

Claim 1 (Currently Amended) An axially restrained-shrunk catheter balloon comprising ~~an axially oriented continuous~~ ^{stretched} polymer wherein the catheter balloon is ^{continuous and} radially re-expandable.



Claim 2 (Original) The catheter balloon of claim 1 wherein the balloon is a compliant or semi-compliant catheter balloon.

Claim 3 (Original) The catheter balloon of claim 1 having a predetermined compliance curve that is attained at least in part by the axially restrained shrinkage of the balloon.

Claim 4 (Original) The catheter balloon of claim 3 wherein the predetermined compliance is a non-linear compliance curve.

Claim 5 (Currently Amended) An axially restrained-shrunk ~~The catheter balloon of claim~~ ^{stretched} ~~+ comprising an axially oriented polymer wherein the catheter balloon is radially re-expandable and wherein the balloon comprises a crosslinked polymer or a polymer with shrink memory.~~

Claim 6 (Previously Presented) The catheter balloon of claim 5 wherein the crosslinked polymer is crosslinked with a chemical crosslinker or wherein the crosslinked polymer is crosslinked using radiation.

Claim 7 (Currently Amended) The catheter balloon of claim 5 ^{or 5} ~~1~~ wherein the balloon ~~comprises a stretch-oriented polymer with shrink memory~~ ^{comprises a stretch-oriented polymer}.



Claim 8 (Original) The catheter balloon of claim 1 wherein the balloon is further coupled to a tubular element.

Claim 9 (Original) The catheter balloon of claim 8 wherein the balloon is welded to the tubular element.

Claim 10 (Original) The catheter balloon of claim 8 wherein the balloon has a balloon outer diameter and wherein the tubular element has a tubular element outer diameter, and wherein the balloon outer diameter and the tubular element outer diameter are the same.

Claim 11 (Currently Amended) ~~A shrunk catheter balloon comprising a continuous polymer having a predetermined compliance curve that is attained at least in part by axially restrained shrinkage of said catheter balloon to form an axially oriented and re-expandable shrunk catheter balloon~~ ^{The} ~~shrunk catheter balloon~~ ^{of claim 1} having a wall thickness that is less than ^a ~~the~~ ^a wall thickness of the polymer tube from which the catheter balloon is formed.

Claim 12 (Canceled)

Claim 13 (Previously Presented) The shrunk catheter balloon of claim ~~11~~ ^{1 having} wherein the ~~compliance curve is~~ a non-linear compliance curve.

~~Claim 14 (Previously Presented) The shrunk catheter balloon of claim 11 wherein the compliance curve has a reduced increase of diameter in a range of 14 atm to 20 atm as compared to a comparable catheter balloon that is produced without axially restrained shrinkage.~~

Claim 15 (Previously Presented) The shrunk catheter balloon of claim 11 wherein the balloon is a compliant or semi-compliant catheter balloon.

Claim 16 (Previously Presented) The shrunk catheter balloon of claim 11 wherein the balloon has an axial front end and an axial back end, and wherein axial restrained shrinkage is achieved by maintaining a distance between the front end and back end relative to each other.

Claim 17 (Previously Presented) The shrunk catheter balloon of claim 11 wherein the balloon has an axial front end and an axial back end, and wherein axial restrained shrinkage is achieved by increasing a distance between the front end and back end relative to each other.

Claim 18 (Previously Presented) The shrunk catheter balloon of claim ¹~~11~~ comprising a crosslinked polymer or a polymer with shrink memory.

Claim 19 (Previously Presented) The shrunk catheter balloon of claim ¹~~11~~ wherein the shrunk catheter balloon is coupled to a wire-guided catheter.

Claims 20-34 (Canceled)

Claim 35 (Previously Presented) A catheter comprising the catheter balloon of claim 1, wherein the catheter has an outer lumen diameter and wherein the catheter balloon has an outer diameter that is equal to or less than the catheter outer lumen diameter.

~~Claim 36 (Previously Presented) A catheter comprising the shrunk catheter balloon of claim 11, wherein the catheter has an outer lumen diameter and wherein the shrunk catheter balloon has an outer diameter that is equal to or less than the catheter outer lumen diameter.~~

Claim 37 (Previously Presented) A catheter comprising the catheter balloon of claim 1, wherein the catheter has an outer lumen of a given diameter and wherein the catheter balloon has an outer diameter that is equal to or greater than the catheter outer lumen diameter.

~~Claim 38 (Previously Presented) A catheter comprising the shrunk catheter balloon of claim 11, wherein the catheter has an outer lumen diameter and wherein the shrunk catheter balloon has an outer diameter that is equal to or greater than the catheter outer lumen diameter.~~

continuous
Claim 39 (Currently Amended) A ~~shrunk~~ catheter balloon produced by a process comprising:
providing a ~~continuous~~ polymer material formed into a tube;
axially stretching the tube ~~to impart axial orientation~~;
forming a ~~continuous~~ balloon from the polymer material, and
heating the balloon while restraining axial contraction in a controlled manner and thereby radially shrinking the axially ~~oriented~~ ^{stretched} balloon.

Claim 40 (Previously Presented) A catheter comprising the shrunk catheter balloon of claim 39, wherein the catheter has an outer lumen diameter and wherein the shrunk catheter balloon has an outer diameter that is equal to or less than the catheter outer lumen diameter.

Claim 41 (Previously Presented) A catheter comprising the shrunk catheter balloon of claim 39, wherein the catheter has an outer lumen diameter and wherein the shrunk catheter balloon has an outer diameter that is equal to or greater than the catheter outer lumen diameter.

Claim 42 (Currently Amended) A catheter comprising a catheter balloon according to claim 1, wherein the restrained-~~shrunk~~ ~~shrink~~ balloon has a reduced profile and the reduced profile is obtained without requiring the wrapping of the shrunk catheter balloon element about itself.

~~Claim 43 (Previously Presented) A catheter comprising a shrunk catheter balloon according to claim 11, wherein the shrunk catheter balloon has a reduced profile and the reduced profile is obtained without requiring the wrapping of the shrunk catheter balloon element about itself.~~

Claim 44 (Previously Presented) A catheter comprising a shrunk catheter balloon according to claim 39, wherein the shrunk catheter balloon has a reduced profile and the reduced profile is obtained without requiring the wrapping of the shrunk catheter balloon element about itself.

Claim 45 (Previously Presented) The catheter balloon of claim 1, having a reduced profile and comprising an expandable portion and a less expandable portion.

Claim 46 (Previously Presented) The catheter balloon of claim 45, wherein the expandable portion is between two less expandable portions.

Claim 47 (Previously Presented) The catheter balloon of claim 1, wherein an outer diameter of an expandable portion is a value between an outer diameter of a corresponding shrunken balloon and an outer diameter of the tube from which it is formed.

Claim 48 (Previously Presented) The catheter balloon of claim 45, joined to a catheter to comprise a medical dilatation device.